

WHAT IS CLAIMED IS:

- 1 1. A method for determining a sequence in which
2 microstructures are to be processed at a laser-processing site, the method
3 comprising:
4 receiving reference data which represent locations of microstructures
5 to be processed at the site;
6 coalescing adjacent groups of microstructures into clusters of
7 microstructures including edge clusters which contain microstructures located near
8 travel limits of a motor-driven stage which moves the microstructures relative to a
9 laser beam at the site;
10 dividing a cluster fragment from each edge cluster wherein the cluster
11 fragments contain the microstructures located near the travel limits; and
12 sorting the clusters and cluster fragments to obtain data which
13 represent a substantially optimum sequence in which the microstructures are to be
14 processed to increase throughput at the site.
- 1 2. The method as claimed in claim 1 wherein the step of sorting
2 is based on energy expended in at least one coil of at least one motor in response to
3 motor commands.
- 1 3. The method as claimed in claim 1 wherein each of the cluster
2 and cluster fragments has a plurality of possible processing directions and wherein
3 the step of sorting includes the step of determining a substantially optimum direction
4 in which to process the microstructures.
- 1 4. The method as claimed in claim 1 wherein the step of sorting
2 includes the steps of selecting a substantially optimum cluster or cluster fragment
3 to be initially processed at the site, then determining a plurality of possible
4 sequences for processing the remaining clusters and cluster fragments and selecting
5 a substantially optimum sequence from the plurality of possible sequences.

1 5. The method as claimed in claim 1 wherein the microstructures
2 are located on dice of a wafer.

1 6. A subsystem for determining a sequence in which
2 microstructures are to be processed at a laser-processing site, the subsystem
3 comprising:
4 means for receiving reference data which represent locations of
5 microstructures to be processed at the site;
6 means for coalescing adjacent groups of microstructures into clusters
7 of microstructures including edge clusters which contain microstructures located
8 near travel limits of a motor-driven stage which moves the microstructures relative
9 to a laser beam at the site;
10 means for dividing a cluster fragment from each edge cluster wherein
11 the cluster fragments contain the microstructures located near the travel limits; and
12 means for sorting the clusters and cluster fragments to obtain data
13 which represent a substantially optimum sequence in which the microstructures are
14 to be processed to increase throughput at the site.

1 7. The subsystem as claimed in claim 6 wherein the means for
2 sorting sorts based on energy expended in at least one coil of at least one motor in
3 response to motor commands.

1 8. The subsystem as claimed in claim 6 wherein each of the
2 clusters and cluster fragments has a plurality of possible processing directions and
3 wherein the means for sorting includes means for determining a substantially
4 optimum direction in which to process the microstructures.

1 9. The subsystem as claimed in claim 6 wherein the means for
2 sorting includes means for selecting a substantially optimum cluster or cluster
3 fragment to be initially processed at the site, for determining a plurality of possible
4 sequences for processing the remaining clusters and cluster fragments and for
5 selecting a substantially optimum sequence from the plurality of possible sequences.

1 10. The subsystem as claimed in claim 6 wherein the
2 microstructures are located on dice of a wafer.

1 11. The subsystem as claimed in claim 10 wherein the
2 microstructures are conductive lines of the dice.

1 12. The subsystem as claimed in claim 11 wherein the conductive
2 lines are metal lines.

1 13. The subsystem as claimed in claim 11 wherein the dice are
2 semiconductor memory devices and wherein the conductive lines are to be ablated
3 at the site to repair defective memory cells of the devices.

1 14. The subsystem as claimed in claim 6 wherein the
2 microstructures are parts of a semiconductor device.

1 15. The subsystem as claimed in claim 14 wherein the
2 semiconductor device is a microelectromechanical device.

1 16. The subsystem as claimed in claim 14 wherein the
2 semiconductor device is a silicon semiconductor device.

1 17. The subsystem as claimed in claim 14 wherein the
2 semiconductor device is a semiconductor memory.

1 18. The subsystem as claimed in claim 6 wherein the
2 microstructures are parts of a microelectronic device.

1 19. The subsystem as claimed in claim 6 wherein the
2 microstructures in each group have a substantially common pitch.

- 1 20. The subsystem as claimed in claim 7 wherein the stage is an
- 2 x-y stage and wherein the means for sorting sorts based on energy expended in a
- 3 plurality of coils of a plurality of motors in response to motor commands.